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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tsukasa Hattori

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11/17/2004

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/018,210	Applicant(s) HATTORI ET AL.	
	Examiner Agustin Bello	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/30/01</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear which limitation, n:m or (n<m) the applicant intends to claim.

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 2 recites the broad recitation n:m, and the claim also recites (n<m) which is the narrower statement of the range/limitation.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art admitted by the applicant (Figure 5) in view of Bulow (U.S. Patent No. 5,793,511).

Regarding claims 1 and 5, the prior art admitted by the applicant teaches an optical-signal autocorrelation-bit-error using an optical branch system, detection apparatus comprising: branch means (reference numeral 3 in Figure 5) for branching a signal to be measured modulated by a pulse signal and outputting branched signals as first and second pulse signals; an optical-electrical conversion means (reference numeral 2 in Figure 5) for converting the an optical signal to an electrical signal, first decision means (reference numeral 4 in Figure 5) for outputting a reference pulse signal accordance with a comparison result between the voltage of the first electrical signal supplied from said conversion means and a light-to-electricity reference-signal generation voltage set to an approximate median of the amplitude said first electrical signal; second decision means (reference numeral 6 in Figure 5) for outputting a measuring pulse signal in accordance with a comparison result between the voltage of the second electrical signal supplied from said light-to-electricity conversion means and a noise detection voltage set to an optional level slid from an approximate median of the amplitude of said second electrical signal to the mark side or space side; and bit error detection means

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(reference numeral 9 in Figure 5) for detecting an autocorrelation bit error of said optical signal to be measured accordance with a comparison result between the reference pulse signal supplied from said first decision means and the measuring pulse signal supplied from said second decision means. The prior art admitted by the applicant differs from the claimed invention in that it fails to specifically teach an optical branch means for branching an optical signal, a first light-to-electricity conversion means for converting a first pulse signal supplied from said optical branch means into a first electrical signal and outputting the first electrical signal; second light-to-electricity conversion means for converting a second pulse signal supplied from said optical branch means into a second electrical signal and outputting the second electrical signal. However, Bulow in the same field of optical receivers, teaches it is well known in the art to optically branch an optical signal and supply the optically branched signal to first (reference numeral 1.8 in Figure 1) and second (reference numeral 1.9 in Figure 1) optical receivers. Furthermore, Bulow discloses that the pair of optical receivers are further coupled to respective decision circuits (see Figure 2). One skilled in the art would have been motivated to employ such a structure in order to allow for the optical separation of the signal. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ an optical branching means and a pair of optical receivers, as taught by Bulow, in the system of the claimed invention.

Regarding claim 2, as best understood by the examiner in view of the 112 rejection above, the combination of references teaches that said optical branch means outputs said first and second optical pulse signals by setting magnitudes of the signals to $n:m$ when branching said optical signal to be measured (inherent in that the branching

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means divides the optical signal into two signals which have a relationship with each other).

Regarding claim 3, the combination of references teaches that said optical branch means branches said optical signal to be measured into N optical signals (see Figure 5 of Bulow) and outputs them as first, second, third, ..., and Nth (N is an integer of 3 or more) optical pulse signals (reference numeral 5.6 in Figure 5 of Bulow), said autocorrelation-bit-error detection apparatus further comprises; third to Nth light-to-electricity conversion means (reference numeral D1-DN in Figure 5 of Bulow) for converting said third to Nth pulse signals supplied from said optical branch means into third to Nth electrical signals and outputting the third to Nth electrical signals, and third to Nth decision means (reference numeral F1-FN and G1-GN in Figure 5 of Bulow and an obvious extension of the design of the admitted prior art Figure 5) for outputting second to Nth measuring pulse signals in accordance with comparison results between voltages of said third to Nth electrical signals supplied from said third Nth light-to-electricity conversion means and noise detection voltages set to optional levels slid from approximate medians of amplitudes of said third to Nth electrical signals to the mark side or space side, and said bit error detection means (reference numeral 1.2 in Figure 5 of Bulow and reference numeral 9 of the admitted prior art) detects the autocorrelation bit error of said optical signal to be measured in accordance with comparison results between the reference signal supplied from said first decision means and said second to Nth measuring pulse signals supplied from said second to Nth decision means.

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6. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art admitted by the applicant (Figure 5) in view of Bulow as applied to claims 1 and 5 above, and further in view of Takamine (U.S. Patent No. 6,240,055).

Regarding claims 4 and 6, the combination of references differs from the claimed invention in that it fails to specifically teach that the detection apparatus is made possible to measure the autocorrelation bit error rate of said optical signal to be measured in accordance with a counted value of autocorrelation bit errors of said optical signal to be measured supplied from said bit error detection means and a counted value of clock signals. However, counting the number of bit errors, then comparing them with a counted value of clock signals is well known in the art. Takamine teaches a similar concept (Figure 7). One skilled in the art would have been motivated to employ an error rate measurement unit such as that taught by Takamine in order to determine the number of error occurring per clock cycle. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a error rate measurement unit such as that taught by Takamine in the device of the combination of references.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Way teaches relevant prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Agustin Bello
Examiner
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A handwritten signature in black ink, appearing to read 'A. Bello', written over the printed name and title.

AB